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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/761,262 | 01/22/2004 | Hiroaki Kajita | 0229-0793P | 2578 |

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EXAMINER

MAKI, STEVEN D

ART UNIT PAPER NUMBER

1733

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,262

Applicant(s)

KAJITA, HIROAKI

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-16-06 has been entered.

2) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) **Claims 1, 3-4 and 8-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 605 (JP 9-150605) in view of Japan 011 (JP 8-113011) and Hubbell et al (US 5733393) and optionally Europe 143 (EP 790143).**

Japan 605 discloses a pneumatic radial tire for a passenger car having handling stability and ride comfort being kept constant with wear. The tire has a tread, breaker, full width band and edge bands. See figure 1. The claimed breaker, full width band and edge plies read on the structure shown in figure 1 of Japan 605. In any event: It would have been obvious to provide Japan 605's tire with the claimed structure of breaker, full width band and edge plies since Europe 143 suggests using a breaker, full width band and edge plies in a passenger car tire to improve high speed durability and cornering performance. Japan 605's tread comprises a upper hard layer and a lower soft rubber layer wherein the thickness of the hard rubber layer increases toward the shoulder. See

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figure 1, abstract and machine translation. Japan 605 does not recite providing the tread with blocks, slits and a rib.

As to claim 1, it would have been obvious to one of ordinary skill in the art to provide Japan 605's pneumatic passenger car tire with the tread pattern shown by Japan 011 since Japan 011 teaches providing a pneumatic tire with a tread pattern which comprises slits, center rib, inner circumferential grooves, outer circumferential grooves, intermediate blocks and shoulder blocks (figures 1, 2) such that the tire has reduced noise without impairing traveling performance.

Furthermore, it would have been obvious to one of ordinary skill in the art to provide Japan 605's pneumatic tire for a passenger car such that it has the claimed "footprint factor" of 75-85% since Hubbell et al, also directed to a pneumatic automobile tire, suggests forming the pneumatic tire such that the footprint factor at standard inflation and load is 77% to 100% (1/1.3 to 1/1) to provide optimal wear and handling properties (Col. 6 lines 1-13).

No unexpected results over the above applied prior art and commensurate in scope with the claims has been shown.

As to claims 3 and 4, it would have been obvious to provide the pneumatic tire with 2-4 axial shoulder grooves in the footprint (ground contacting face) in view of (1) Japan 605's teaching that the tread pattern includes axial shoulder grooves and (2) the above noted teaching from Hubbell to form the pneumatic tire such that the footprint factor at standard inflation and load is 77% to 100% (1/1.3 to 1/1) to provide optimal wear and handling properties (Col. 6 lines 1-13). As to theta being 60-80 degrees,

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Japan 011 suggests this subject matter. The illustrated angle θ_1 for Japan 011's axial grooves in figure 2 is about 70 degrees with respect to the circumferential direction.

As to claims 8 and 9, it would have been obvious to incline the straight lines between the ends of the axial grooves at 60-75 degrees and to reversely incline the straight line between the ends of the slits (narrow grooves) at 40-50 degrees since Japan 011 teaches reversely orienting the axial grooves and slits. See figure 2.

As to claim 10, Japan 011's shoulder grooves are crank shaped.

As to claims 11 and 15, Japan 011 teaches using zigzag slits in the shoulder blocks as well as the middle blocks (figure 2).

As to claims 12-14, Japan 011 shows middle blocks separated by axial grooves and slits in the middle blocks. See figures 2.

As to claim 16, Japan 011's circumferential grooves are zigzag.

As to claims 17 and 18, it would have been obvious to one of ordinary skill in the art to use the claimed W_a and grooves widths since Japan 011 teaches dimensioning the tread pattern with circumferential groove widths of 5-15 mm (4-13% TW), transverse groove widths of 5-10 mm, slit widths of less than 3 mm, etc.

As to claim 19, Japan 605 discloses gradually increasing the thickness of the hard outer layer toward the shoulders.

As to claim 20, the claimed specific breaker plies and edge band plies would have been obvious in view of Europe 143's suggestion to use a breaker having a width

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WB of 80-110% of the tread width and edge plies having a width WE of 10-20% of the tread width wherein the breaker may comprise steel cords.

As to claim 21, Hubbell et al teaches a generally oval footprint and thereby suggests the gradual decreasing circumferential length of the footprint from the center towards the edges.

4) Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 605 in view of Japan 011 and Hubbell et al and optionally Europe 143 as applied above and further in view of Japan 203 (JP 4-110203).

As to claims 3 and 4, it would have been obvious to provide the pneumatic tire with 2-4 axial shoulder grooves in the footprint (ground contacting face) in view of (1) Japan 011's teaching that the tread pattern includes axial shoulder grooves, (2) the above noted teaching from Hubbell to form the pneumatic tire such that the footprint factor at standard inflation and load is 77% to 100% (1/1.3 to 1/1) to provide optimal wear and handling properties (Col. 6 lines 1-13) and (3) the suggestion from Japan 203 to provide a tread such that, for example three, axial shoulder grooves are in the footprint. Japan 203 teaches steering stability and prevention of uneven abrasion is improved.

5) Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 605 in view of Japan 011 and Hubbell et al and optionally Europe 143 as applied above and further in view of Rampl (US 4739811).

As to claims 6 and 7, it would have been obvious to one of ordinary skill in the art to provide the outer rubber and inner rubber of Japan 605's tread with the claimed

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hardness and tan delta in view of (1) Japan 605's teaching to use a higher hardness and higher tan delta for the outer rubber than the inner layer and (2) Rampl's suggestion to form a tire tread with a harder cap and a softer base wherein the harder cap may have a hardness of 60-80 and a tan delta of greater than 0.1 (e.g. 0.14 to 0.20) and the softer base may have a hardness of 50-70 and a tan delta of smaller than 0.1 (e.g. 0.03-0.08) for improved driving comfort and noise reducing effect (col. 4 line 31+).

Remarks

6) Applicant's arguments with respect to claims 1, 3, 4 and 6-21 have been considered but are moot in view of the new ground(s) of rejection.

7) No claim is allowed.

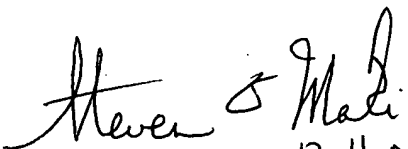
8) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
December 11, 2006


STEVEN D. MAKI 12-11-06
PRIMARY EXAMINER